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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/686,115

10/11/2000

Charu C. Aggarwal

YOR920000429US1

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05/02/2006

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EXAMINER

STARKS, WILBERT L

ART UNIT

PAPER NUMBER

2129

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/686,115

Applicant(s)

AGGARWAL ET AL.

Examiner

Wilbert L. Starks, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 U.S.C. §101

1. 35 U.S.C. §101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

the invention as disclosed in claims 1-30 is directed to non-statutory subject matter.

2. Regardless of whether any of the claims are in the technological arts, none of them is limited to practical applications in the technological arts. Examiner finds that *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) controls the 35 U.S.C. §101 issues on that point for reasons made clear by the Federal Circuit in *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447 (Fed. Cir. 1999). Specifically, the Federal Circuit held that the act of:

...[T]aking several abstract ideas and manipulating them together adds nothing to the basic equation. *AT&T v. Excel* at 1453 quoting *In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

Examiner finds that Applicant's "data set" references are just such abstract ideas.

3. Examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete

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agreement with those decisions. *Warmerdam* is consistent with *State Street*'s holding that:

Today we hold that *the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price*, constitutes a practical application of a mathematical algorithm, formula, or calculation because it produces 'a useful, concrete and tangible result' -- *a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades*. (Emphasis added) *State Street Bank* at 1601.

4. True enough, that case later eliminated the "business method exception" in order to show that business methods were not per se nonstatutory, but the court clearly *did not* go so far as to make business methods *per se* statutory. A plain reading of the excerpt above shows that the Court was *very specific* in its definition of the new *practical application*. It would have been much easier for the court to say that "business methods were per se statutory" than it was to define the practical application in the case as "...the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price..."

5. The court was being very specific.

6. Additionally, the court was also careful to specify that the "useful, concrete and tangible result" it found was "a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." (i.e. the trading activity is the further practical use of the real world

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monetary data beyond the transformation in the computer – i.e., “post-processing activity”.)

7. Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used.

8. Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

...[T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating ‘abstract ideas’ or ‘natural phenomena’ ... As the Supreme Court has made clear, ‘[a]n idea of itself is not patentable, ... taking several abstract ideas and manipulating them together adds nothing to the basic equation.’ *In re Warmerdam* 31 USPQ2d at 1759 (emphasis added).

9. Since the Federal Circuit held in *Warmerdam* that this is the “dispositive issue” when it judged the usefulness, concreteness, and tangibility of the claim limitations in that case, Examiner in the present case views this holding as the dispositive issue for determining whether a claim is “useful, concrete, and tangible” in similar cases. Accordingly, the Examiner finds that Applicant manipulated a set of abstract “data sets” to solve purely algorithmic problems in the abstract (i.e., what *kind* of “data set” is used? Algebraic word problems? Boolean logic problems? Fuzzy logic algorithms? Probabilistic word problems? Philosophical ideas? Even vague expressions, about which even reasonable persons could differ as to their meaning? Combinations thereof?) Clearly, a claim for manipulation of “data sets” is provably even more abstract (and thereby less limited in practical application) than pure “mathematical algorithms” which the Supreme Court has held are per se nonstatutory – in fact, it *includes* the expression of nonstatutory mathematical algorithms.

10. Since the claims are not limited to exclude such abstractions, the broadest reasonable interpretation of the claim limitations includes such abstractions. Therefore, the claims are impermissibly abstract under 35 U.S.C. §101 doctrine.

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11. Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes the same view of “useful, concrete, and tangible” the Federal Circuit applied in *State Street Bank*. Therefore, under *State Street Bank*, this could not be a “useful, concrete and tangible result”. There is only manipulation of abstract ideas.

12. The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T Corp. v. Excel Communications, Inc.* decision. The Court reminded us that:

Finally, the decision in *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) is not to the contrary. *** The court found that the claimed process did nothing more than manipulate basic mathematical constructs and concluded that ‘taking several abstract ideas and manipulating them together adds nothing to the basic equation’; hence, the court held that the claims were properly rejected under §101 ... Whether one agrees with the court’s conclusion on the facts, the holding of the case is a straightforward application of the basic principle that mere laws of nature, natural phenomena, and abstract ideas are not within the categories of inventions or discoveries that may be patented under §101. (emphasis added) *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447, 1453 (Fed. Cir. 1999).

13. Remember that in *In re Warmerdam*, the Court said that this was the dispositive issue to be considered. In the *AT&T* decision cited above, the Court reaffirms that this is the issue for assessing the “useful, concrete, and tangible” nature of a set of claims under §101 doctrine. Accordingly, Examiner views the *Warmerdam* holding as the dispositive issue in this analogous case.

14. The fact that the invention is merely the manipulation of *abstract ideas* is clear. The data referred to by Applicant’s phrase “data set” is simply an abstract construct that does not limit the claims to the transformation of real world data (such as monetary data

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or heart rhythm data) by some disclosed process. Consequently, the necessary

conclusion under *AT&T*, *State Street* and *Warmerdam*, is straightforward and clear.

The claims take several abstract ideas (i.e., "data sets" in the abstract) and manipulate them together adding nothing to the basic equation. Claims 1-30 are, thereby, rejected under 35 U.S.C. §101.

Claim Rejections - 35 U.S.C. §112

The following is a quotation of the first paragraph of 35 U.S.C. §112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claims 1-30 are rejected under 35 U.S.C. §112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This is how the MPEP puts it:

("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35 U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. § 101, then the application also fails as a matter of law to enable one of ordinary skill in the art to use the invention under 35 U.S.C. § 112."; In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**") See, MPEP 2107.01(IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-30 are rejected on this basis.

Argument 1

With regard to the rejections of claims 1-30 under 35 U.S.C. §101 and §112, first paragraph, Applicants have amended independent claims 1, 10, 11, 20, 21 and 30 so that they recite a practical application in the technological arts in an effort to expedite the application through to issuance. Specifically, independent claims 1, 10, 11, 20, 21 and 30 recite techniques for optimizing data mining in a computer, the data mining being performed on the computer to detect one or more outliers in a high dimensional data set of personal attributes. Support for the amendments can be found in the specification on page 12, lines 19-26, and page 13, lines 3-27.. Applicants believe that claims 1-30 contain statutory subject matter under §101 and therefore request withdrawal of the rejections under §101 and §112, first paragraph.

A "data object" is not a real world construct and it does not limit the claims to any sort of real world thing. Taking a set of "data objects" and classifying them does not limit the claims to practical applications, it does not provide a useful, concrete, and tangible result.

What is the concrete and tangible result and how is it used?

Is it a classification of credit applicants? Is it a classification of products on an assembly line? Is it a classification of criminal suspects? Is it a classification of patients in a hospital? Is it a classification of providers of raw materials purchased by a company in order to select high quality providers? Is it a classification of entrants to the military? There are myriad possible practical applications...each of which is a separate invention.

Applicant is entitled to only one invention per independent claim...Applicant has not provided limitations that teach the practical application of the algorithm. The claim is devoid of any statutory matter and, thereby fails to satisfy §101.

Argument 2

The Examiner contends that Applicants' "data set" is an abstract idea. While the Examiner is correct in that abstract ideas alone are not eligible for patenting, methods and products employing abstract ideas to perform a real-world function may well be. It is for the discovery or invention of some practical method or means of producing a beneficial result or effect., that a patent is granted.

The focus of the inquiry is whether the claim, considered as a whole, constitutes "a practical application of an abstract idea." *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 47 USPQ2d 1596 at 1600. Further, in *Ex parte Lundgren*, Appeal No. 2003-2088, the Board held that there is currently no judicially recognized separate "technological arts" test to determine patent eligible subject matter under §101. Thus, the question of whether a claim encompasses statutory subject matter should not focus on which category of subject matter a claim is directed to, "but rather on the essential characteristics of the subject matter, in particular its practical utility." *State Street*, 149 F.3d at 1375, 47 USPQ2d at 1602. Accordingly, an "abstract idea" when practically applied to a useful end is eligible for a patent. *State Street*, 149 F.3d at 1374, 47 USPQ2d at 1601.

In *State Street*, the Federal Circuit examined some of its prior §101 cases, observing that the claimed inventions in those cases were each for a "practical application of an abstract idea" because the elements of the invention operated to produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373-74, 47 USPQ2ds at 1601-02. In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result is "useful, tangible and concrete."

The final result achieved by the claimed invention provides a practical application that produces a useful, tangible and concrete result. The utility of the invention is specific, substantial and credible. The claims are tangible in that they are tied to a particular machine or apparatus. Finally, the invention is concrete in that the result can be assured and is substantially repeatable. At a minimum, the invention, as recited in the subject claims, produces a useful, concrete and tangible result in the form of an optimization of data mining in a computer to detect one or more outliers in a high dimensional data set of personal attributes.

Again, a "data object" is not a real world construct and it does not limit the claims to any sort of real world thing. Taking a set of "data objects" and classifying them does not limit the claims to practical applications, it does not provide a useful, concrete, and tangible result.

What is the concrete and tangible result and how is it used?

Is it a classification of credit applicants? Is it a classification of products on an assembly line? Is it a classification of criminal suspects? Is it a classification of patients in a hospital? Is it a classification of providers of raw materials purchased by a company in order to select high quality providers? Is it a classification of entrants to the military? There are myriad possible practical applications...each of which is a separate invention.

Applicant is entitled to only one invention per independent claim...Applicant has not provided limitations that teach the practical application of the algorithm. The claim is devoid of any statutory matter and, thereby fails to satisfy §101.

Argument 3

A claim limited to a machine or manufacture, which has a practical application, is statutory. A claim to a specific machine or manufacture will have a practical application, and is not a disembodied mathematical concept which may be characterized as an "abstract idea," but rather a specific machine to produce a useful, concrete and tangible result.

Applicant merely uses a computer to calculate according to the algorithm. This is not a step that by itself makes a claim per se statutory. Further, putting an algorithm on a computer readable medium is specifically a claim for a product of manufacture. Products of manufacture are not per se statutory, no more than preamble recitals for "methods" or "machines" are. Specifically, the Federal Circuit held in *AT&T v. Excel*, 50 USPQ2d 1447 (Fed. Cir. 1999) that:

Whether stated implicitly or explicitly, we consider the scope of Section 101 to be the same regardless of the form -- machine or process -- in which a particular claim is drafted. *AT&T v. Excel*, 50 USPQ2d 1447,

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1452 citing *In re Alappat*, 33 F.3d at 1581, 31 USPQ2d at 1589 (Rader, J., concurring) (emphasis added.)

The proper inquiries to determine whether a claim is statutory were defined in State Street and Warmerdam. Applicant has not satisfied any holding in either of these cases...much less the Supreme Court precedents of Diamond v. Diehr and Cochrane v. Deener. Applicant's claims are devoid of statutory matter and Applicant has not shifted his burden regarding this issue. The rejections of the claims STAND.

Argument 4

Functional descriptive material consists of data structures and computer programs which impart functionality when employed as a computer component. When functional descriptive material is recorded on some computer-readable medium it become structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of descriptive material to be realized. For example, a claim to data structure stored on a computer readable medium that increases computer efficiency was held statutory, *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994). Further, a claim to computer having a specific data structure stored in memory was held statutory. *In re Warmerdam*, 33 F.3d 1354 at 1360-61, 31 USPQ2d 1754 at 1759.

Unlike the precedent he cites, Applicant has not claimed that he increases computer efficiency in any way. Further, Applicant simply makes a conclusory statement about Warmerdam without explaining his interpretation. In Warmerdam, it is true that one claim was found to be allowable, but that claim was not rejected by Examiner under §101. Therefore, Applicant's reference to that part of Warmerdam is erroneous. The court did not decide any questions regarding whether the claim was statutory. Therefore, Applicant's recital of law is erroneous and not applicable to this case.

Argument 5

A claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material per se and hence nonstatutory. When a computer program is claimed in a process where the computer is executing the computer program's instructions, the claim should be treated as a process claim. When a computer program is recited in conjunction with a physical structure, such as a computer memory, it should be treated as a product claim.

Applicant merely uses a computer to calculate according to the algorithm. This is not a step that by itself makes a claim per se statutory. Further, putting an algorithm on a computer readable medium is specifically a claim for a product of manufacture. Products of manufacture are not per se statutory, no more than preamble recitals for "methods" or "machines" are. Specifically, the Federal Circuit held in *AT&T v. Excel*, 50 USPQ2d 1447 (Fed. Cir. 1999) that:

Whether stated implicitly or explicitly, we consider the scope of Section 101 to be the same regardless of the form -- machine or process -- in which a particular claim is drafted. *AT&T v. Excel*, 50 USPQ2d 1447, 1452 citing *In re Alappat*, 33 F.3d at 1581, 31 USPQ2d at 1589 (Rader, J., concurring) (emphasis added.)

The proper inquiries to determine whether a claim is statutory were defined in State Street and Warmerdam. Applicant has not satisfied any holding in either of these cases...much less the Supreme Court precedents of Diamond v. Diehr and Cochrane v. Deener. Applicant's claims are devoid of statutory matter and Applicant has not shifted his burden regarding this issue. The rejections of the claims STAND.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (571) 272-3691.

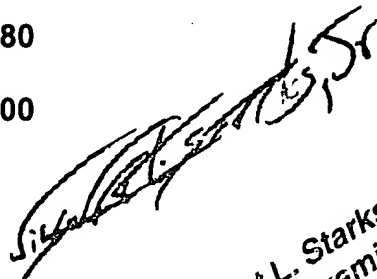
Alternatively, inquiries may be directed to the following:

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WLS

28 April 2006



Wilbert L. Starks, Jr.
Primary Examiner
Art Unit - 2121